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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,862	12/31/2003	Oleg Kiselev	VRT0058P1US	6313

60429 7590 08/15/2006

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EXAMINER	
RUTZ, JARED IAN	
ART UNIT	**PAPER NUMBER**
2187	

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/749,862	KISELEV ET AL.	
	Examiner	Art Unit	
	Jared I. Rutz	2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9-11,13,14 and 18* is/are rejected.

7)☒ Claim(s) *7, 8, 12, 15, and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-16 and 18 are pending in the instant application. Applicant's arguments submitted 7/5/2006 have been carefully and fully considered, but they are not persuasive. The double patenting rejections of claims 1-6, 9-11, 13, 14, and 18 are maintained. Accordingly, this Office action is made **FINAL**.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. **Claims 1, 5, 9, 13, 14, and 18** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 9, and 12 of U.S. Patent No. 7,028,156 in view of Bearden et al. (US 2004/0205298).

10/479,862	**7,028,156**
1. A method comprising: receiving a first read request from a computer system.	1. In a data storage system, a method comprising receiving a first request to read data from a data volume, wherein the first request is received from a computer system
Reading data from a first mirror of a data volume in response to receiving the first read request.	Reading data from a first memory configured to store the data volume in response to receiving the first request
Reading data from a second mirror of the data volume in response to receiving the first read request.	Reading data from a second memory configured to store a mirrored copy of the data volume in response to receiving the first request
Returning the data read from the first mirror to the computer system.	Returning the data read from the first memory to the computer system
Storing the data read from the second mirror into a cache memory.	Storing the data read from the second memory into a memory device

Receiving a second read request from the computer system, wherein the second read request is received subsequent to the first read request, and wherein the first and second read requests seek the same data.	Receiving a second request to read from the data volume, wherein the second request is received from the computer system, and wherein the first and second requests seek the same data.
Returning data stored in the cache memory in response to receiving the second read request.	Bearden teaches returning data stored in a cache when the data is requested (paragraph 0029)
5. further comprising comparing time T1 with time T2, wherein time T1 is the time when the first read request was received, and wherein time T2 is the time when the second read request was received	Comparing time T1 with time T2, wherein time T1 is the time when the first request was received, and wherein time T2 is the time when the second request was received
9. A computer readable medium comprising instructions executable by a first computer system, wherein the first computer system performs a method in response to executing the instructions, the method comprising: receiving a first read request from a computer system Reading data from a first mirror of a data volume in response to receiving the first read request.	9. A computer readable medium comprising instructions executable by a first computer system, wherein the first computer system performs a method in response to executing the instructions, the method comprising: reading data from a first memory configured to store a data volume in response to receiving a first request to read data from the data volume, wherein the first request is received from a second computer system in data communication with the first computer system

Reading data from a second mirror of the data volume in response to receiving the first read request.	Reading data from a first memory configured to store a mirrored copy of the data volume in response to receiving the first request
Returning the data read from the first mirror to the computer system.	Returning the data read from the first memory to the second computer system
Storing the data read from the second mirror into a cache memory.	Storing the data read from the second memory into a memory device of the first computer system
Receiving a second read request from the computer system, wherein the second read request is received subsequent to the first read request, and wherein the first and second read requests seek the same data.	Receiving a second request to read from the data volume, wherein the second request is received from the computer system, and wherein the first and second requests seek the same data
Returning data stored in the cache memory in response to receiving the second read request.	Bearden teaches returning data stored in a cache when the data is requested (paragraph 0029)
13. Further comprising comparing time T1 with time T2, wherein time T1 is the time when the first read request was received, and wherein time T2 is the time when the second read request was received	Comparing time T1 with time T2, wherein time T1 is the time when the first request was received, and wherein time T2 is the time when the second request was received.
14. further comprising reading the data stored in the cache memory in response to receiving the second request only if time T2 occurs within a predetermined amount of time after T1	12. wherein the method further comprises reading the data stored in the memory device only if time T2 occurs within a predetermined amount of time after T1; returning the data read from the memory device to the computer system.

18 A data processing system comprising; a first computer system coupled to a memory system, wherein the memory system stores a data volume comprising a first mirror and a second mirror. Wherein the first computer system comprises a memory for storing instructions executable by the first computer system. Wherein the first computer system implements a method in response to executing the instructions, the method comprising: receiving a first read request from a computer system.	1. In a data storage system, a method comprising: *Bearden teaches a computer system, item 302 of fig 3, comprising a memory for storing instructions executable by the computer system, item 330 of fig 3.* *Bearden teaches that the computer system implements methods when executing the stored instructions, paragraph 0055.*
Reading data from the first mirror in response to receiving the first read request.	Receiving a first request to read data from a data volume, wherein the first request is received from a computer system; reading data from a first memory configured to store the data volume in response to receiving the first request
Reading data from the second mirror of the data volume in response to receiving the first read request.	Reading data from a second memory configured to store a mirrored copy of the data volume in response to receiving the first request
Returning the data read from the first mirror to the computer system.	Returning the data read from the first memory to the computer system
Storing the data read from the second mirror into a cache memory.	Storing the data read from the first memory into a memory device
Receiving a second read request from the computer system, wherein the second read request is received subsequent to the first read request, and wherein the first and second read requests are for the same data.	Receiving a second request to read data from the data volume, wherein the second request is received from the computer system, and wherein the first and second requests seek the same data

Returning data stored in the cache memory in response to receiving the second read request.	Bearden teaches returning data stored in a cache when the data is requested (paragraph 0029)
	Comparing time T1 with time T2, wherein time T1 is the time when the first request was received, and wherein time T2 is the time when the second request was received

4. The invention of claims 1, 5, 9, 13, 14, and 18 differs from the invention claimed in patent 7,028,156 as shown *supra*.

5. Bearden teaches the usage of pre-fetching data that is likely to be requested by a host computer, paragraph 0004.

6. US patent 7,028,156 and Bearden are analogous art because they are from the same field of endeavor, the design of computer data storage systems.

7. At the time of the invention it would have been obvious to one of ordinary skill in the art to pre-fetch the data stored in the second mirror and store it in a cache memory.

8. The motivation for doing so would have been to improve the data rate by retrieving data from storage ahead of time, Bearden paragraph 0004.

9. Therefore, it would have been obvious to combine Bearden with US patent 7,028,156 for the benefit of improving the data rate between the storage system and the requesting computer to obtain the invention as specified in claims 1, 5, 9, 13, 14, and 18.

10. **Claims 1-6, 9-11, 13, and 18** are provisionally rejected on the ground of nonstatutory double patenting over claims 1-4, 8, 14-17, and 23 of copending

Application No. 10/742,129 in view of Bearden (cited *supra*). This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

11. The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

12. Independent **claim 1** of the instant applicant differs from independent claim 1 of application 10/742,129 in that the instant application performs pre-fetching of the data stored in the second mirror when the first read request is received and returns the data stored in the cache when the second read request is received.

13. Independent **claim 9** of the instant applicant differs from independent claim 14 of application 10/742,129 in that the instant application performs pre-fetching of the data stored in the second mirror when the first read request is received and returns the data stored in the cache when the second read request is received.

14. Independent **claim 18** of the instant applicant differs from independent claim 23 of application 10/742,129 in that the instant application performs pre-fetching of the data stored in the second mirror when the first read request is received and returns the data stored in the cache when the second read request is received.

15. Bearden teaches the usage of pre-fetching data that is likely to be requested by a host computer, paragraph 0004.

16. Application No. 10/742,129 and Bearden are analogous art because they are from the same field of endeavor, the design of computer data storage systems.

17. At the time of the invention it would have been obvious to one of ordinary skill in the art to pre-fetch the data stored in the second mirror and store it in a cache memory.

18. The motivation for doing so would have been to improve the data rate by retrieving data from storage ahead of time, Bearden paragraph 0004.

19. Therefore, it would have been obvious to combine Bearden with Application No. 10/742,129 for the benefit of improving the data rate between the storage system and the requesting computer to obtain the invention as specified in claims 1-6, 9-11, 13, and 18.

20. Dependent claims 2-6, 10, 11, and 13 correspond to the claims of application 10/742,129 as follows:

10/749,862	2	3	4	5	6	10	11	13
10/742,129	2	3	4	8	8	15	16	17

21. Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

22. **Claims 1, 5, 6, 9, and 18** are provisionally rejected on the ground of nonstatutory double patenting over claims 24, 25, 32, and 41 of copending Application No.

11/242,216. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

23. The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

24. All limitations of independent **claim 1** of the instant application are recited in claim 24 of application 11/242,216.

25. Dependent **claims 5 and 6** of the instant application specify comparing two times relating to when read requests are received, and only returning the data stored in the cache if the second request occurs within a predetermined amount of time after the first request. Claim 25 of application 11/142,216 requires returning the data stored in the memory device if the second request is received within a predetermined amount of time after receiving the first request.

26. All limitations of independent **claim 9** of the instant application are recited in claim 32 of application 11/142,216.

27. All limitations of independent **claim 18** of the instant application are recited in claim 40 of application 11/142,216.

28. Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Response to Arguments

29. Applicant's arguments filed 7/5/2006 have been fully considered but they are not persuasive.

30. **First point of Argument**

31. In the third paragraph beginning on page 7, Applicant argues "*the Office Action admits that 'returning data stored in the cache memory in response to receiving the second request' of independent claims 1, 9, and 18 is not found in Kiselev.*" The Examiner respectfully disagrees. The limitation "*returning data stored in the cache memory in response to receiving the second request*" is not claimed in the 7,028,156 patent, but is taught by item 102 of figure 4A.

32. **Second point of Argument**

33. In the first paragraph beginning on page 8, Applicant argues:

a. "*A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but one examined application claim is not patentably distinct from the reference claim or claims because the examined application claim is either anticipated by or would have been obvious over, the reference claim or claims. See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1266 (Fed. Cir 1998). This cited section of In re Berg makes clear that a nonstatutory obviousness-type double patenting rejection is based upon the claim or claims of one reference. The Office Action rejects independent claims 1, 9, and 18 based upon two references. As such, Applicants assert that the*

nonstatutory obviousness-type double patenting rejection of independent claims 1, 9, and 18, is improper."

34. The Examiner respectfully disagrees. Claims 1, 5, 9, 13, 14 and 18 are rejected as being obvious variations of claims 1, 9, and 12 of 7,028,156. Bearden is cited to show the obviousness of "*returning data stored in the cache memory in response to receiving the second read request*". MPEP 804 (II)(B)(1) states:

b. "*A double patenting rejection of the obviousness-type is "analogous to [a failure to meet] the nonobviousness requirement of 35 U.S.C. 103" except that the patent principally underlying the double patenting rejection is not considered prior art. In re Braithwaite, 379 F.2d 594, 154 USPQ 29 (CCPA 1967). Therefore, any analysis employed in an obviousness-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. 103 obviousness determination. In re Braat, 937 F.2d 589, 19 USPQ2d 1289 (Fed. Cir. 1991); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985).*"

35. The Examiner relied upon Bearden to establish the obviousness of "*returning data stored in the cache memory in response to receiving the second read request*". Accordingly, the Examiner holds that the obviousness type double patenting rejections of claims 1, 5, 9, 13, 14, and 18 are proper and consistent with Office policy.

36. **Third point of Argument**

37. In the second paragraph beginning on page 8, Applicant argues:

c. "*Independent claims 1-6, 9-11, 13, and 18 were provisionally rejected on the ground of nonstatutory double patenting over claims 1-4, 8, 14-17, and 23 of*

the '129 Application in view of Bearden. Applicants submit that this rejection is improper for the same reasons set forth above. Namely, since In re Berg makes clear that a nonstatutory obviousness-type double patenting rejection is based upon the claim or claims of one reference, and since the Office Action rejection rejects claims 1-6, 9-11, 13, and 18 based upon two references, Applicants assert that the nonstatutory obviousness-type double patenting rejection of claims 1-6, 9-11, 13, and 18 is improper."

38. The Examiner respectfully disagrees for the same reasons presented *supra* with respect to the obviousness-type double patenting rejection of claims 1, 5, 9, 13, 14 and 18 as being obvious variations of claims 1, 9, and 12 of 7,028,156.

39. **Fourth point of Argument**

40. In the third paragraph beginning on page 8, Applicant argues:

d. "*Claims 1, 5, 6, 9, and 18 were provisionally rejected on the ground of nonstatutory double patenting over claims 24, 25, 32, and 41 of Application '216. with respect to claim 1, the Office Action asserts that all limitations of independent claim 1 are recited in claim 24 of the '216 application. Claim 24 of the '216 Application is dependent upon claim 22 of the '216 patent application. Claim 22 of the '216 patent application, in turn, recites 'comparing the data read from the first memory with the data read from the second memory,' which is not taught or fairly suggested in independent claim 1 set forth above. As such, Applicants submit that independent claim 1 is patentably distinct over claim 24 of the '216 patent application.*"

41. The Examiner respectfully disagrees. That claim 24 of the '216 Application is dependent upon claim 22 of the '216 Application, and that claim 22 recites a limitation not recited in claim 1 of the instant application does not show that claim 1 of the instant application is patentably distinct over claim 24 of the '216 Application. Claim 24 of the '216 Application anticipates, and therefore renders obvious, claim 1 of the instant application.

42. **Fifth point of Argument**

43. In the first paragraph beginning on page 9, Applicant argues:

e. "*The Office Action similarly asserts that all limitations of independent claim 9 are recited in claim 32 of the '216 application. Claim 32 of the '216 patent application recites 'comparing the data read from the first memory with the data read from the second memory,' which is not taught or fairly suggested independent claim 9. As such, independent claim 9 is patentably distinct over claim 32 of the '216 patent application.*"

44. The Examiner respectfully disagrees. That claim 32 of the '216 Application recites a limitation not recited in claim 9 of the instant application does not show that claim 9 of the instant application is patentably distinct over claim 32 of the '216 Application. Claim 32 of the '216 Application anticipates, and therefore renders obvious, claim 9 of the instant application.

45. **Sixth point of Argument**

46. In the second paragraph beginning on page 9, Applicant argues:

f. "*The Office Action asserts that all limitations of independent claim 18 are recited in claim 40 of the '216 application. Claim 40 of the '216 application is dependent from claim 39 of the '216 patent application. Claim 39 of the '216 patent application recites 'comparing the data read from the first memory with the data read from the second memory,' which is not taught or fairly suggested in independent claim 18 set forth above. As such, Applicants submit that independent claim 18 is patentably distinguishable over claim 40 of the '216 application.*"

47. The Examiner respectfully disagrees. That claim 40 of the '216 Application recites a limitation not recited in claim 18 of the instant application does not show that claim 18 of the instant application is patentably distinct over claim 40 of the '216 Application. Claim 40 of the '216 Application anticipates, and therefore renders obvious, claim 18 of the instant application.

Allowable Subject Matter

48. **Claims 7, 8, 12, 15, and 16** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

49. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared I. Rutz whose telephone number is (571) 272-5535. The examiner can normally be reached on M-F 8:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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